DOCUMENT RESUME

ED 385 514 SP 036 135

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TITLE Classroom Practices That Enhance Students' Sense of Community.
PUB DATE Apr 95
NOTE 49p.; Paper presented at the Annual Meeting of the American Educational Research Association (San Francisco, CA, April 18-22, 1995).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Classroom Environment; *Classroom Techniques; Elementary Education; Elementary School Students; Group Activities; *Group Experience; *Student Attitudes; Student Behavior; *Teacher Attitudes; *Teaching Models
IDENTIFIERS *Sense Of Community

ABSTRACT

This study investigates sense of community as a central integrating factor promoting students' attachments to school and thereby their striving to adopt the school's norms and values. Data from observations of 232 elementary classrooms and from student questionnaires were used to test a model linking teacher classroom practices to students' sense of the classroom as a community (assessed by questionnaire) through intermediate effect on students' classroom behavior. The model was generally confirmed and showed that teacher practices (including emphasis on prosocial values, elicitation of student thinking and expression of ideas, encouragement of cooperation, warmth and supportiveness, and reduced use of extrinsic control) were related to student classroom behaviors (including engagement, influence, and positive behavior), which in turn were related to students' sense of community. Teachers' encouragement of cooperative activities was particularly important in this sequence. The appropriateness of the model was tested for schools serving populations that were both high and low in level of poverty, and all estimates of parameters and relationships were found to be invariant across these groups. (Contains 27 references.) (Author/ND)

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ED 385 514

Classroom Practices that Enhance Students' Sense of Community

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Paper presented at the annual convention of the American Educational Research Association, San Francisco, April 1995. This research is part of a larger project that is being funded by grants from: the William and Flora Hewlett Foundation; the San Francisco Foundation; the Robert Wood Johnson Foundation; the Danforth Foundation; the Stuart Foundations; the Pew Charitable Trusts; the John D. and Catherine T. MacArthur Foundation; the Annenberg Foundation; Spunk Fund, Inc.; the DeWitt Wallace-Reader's Digest Fund, Inc.; Louise and Claude Rosenberg; and the Center for Substance Abuse Prevention, U.S. Department of Health and Human Services.

Running Head: SENSE OF COMMUNITY IN CLASSROOMS

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Abstract

Data from observations of 232 elementary classrooms and from student questionnaires were used to test a model linking teacher classroom practices to students' sense of the classroom as a community (assessed by questionnaire) through intermediate effects on students' classroom behavior. The model was generally confirmed and showed that teacher practices (including *emphasis on prosocial values, elicitation of student thinking and expression of ideas, encouragement of cooperation, warmth and supportiveness,* and *reduced use of extrinsic control*) were related to student classroom behaviors (including *engagement, influence,* and *positive behavior*), which, in turn, were related to students' *sense of community.* Teachers' encouragement of cooperative activities was particularly important in this sequence. The appropriateness of the model was tested for schools serving populations that were both high and low in level of poverty, and all estimates of parameters and relationships were found to be invariant across these groups.

Classroom Practices that Enhance Students' Sense of Community

Several recent studies have indicated that students' personal, social and intellectual growth may be enhanced by being in classrooms or schools in which they feel a "sense of community." Although research in this area is by no means extensive as yet, the findings thus far are promising and fairly consistent across studies (Arhar & Kromrey, 1993; Battistich Solomon, Watson, & Schaps, 1994; Bryk & Driscoll, 1988; Goodenow, 1993a; 1993b; Hallinger & Murphy, 1986; Higgins). Our own research on elementary school students (3rd - 6th graders) has shown that students who feel a strong sense of community in their classrooms and schools also tend to score high on various measures of personal and social development (e.g., self-esteem, concern for others, liking for school, educational aspirations, academic motivation; Battistich et al., 1994; Solomon, Watson, Battistich, Schaps, & Delucchi, 1992). Furthermore, it was found that although students' sense of community (as well as most of the other student variables assessed) was strongly negatively related to the poverty level of the students in the school, the positive associations between community and the other student measures generally were maintained when poverty level was statistically controlled. In fact, when the schools were divided into upper, middle, and lower thirds of the poverty distribution (defined by the percentage of students eligible for free or reduced lunches), it was found that some of the relationships with community were actually strongest for students in the poorest schools. Thus it appeared that the creation of a sense of community in the classroom and school might be able to help mitigate some of the negative effects associated with poverty (Solomon & Battistich, 1993).

If this is so, it is critically important to identify teacher and classroom activities and practices that can help to create the sense of community among students. Although prior research can offer some clues, we know of none that has explicitly examined the determinants of the sense of community experienced by students in classrooms. Research in the "process-product" tradition has identified many teacher and classroom factors that produce a broad range of student outcomes (see Brophy & Good, 1986), but in our view insufficient attention has been

paid to student activities and perceptions that may function as critical intervening variables. Students in classrooms are embedded in social networks, but the affective, motivational, and cognitive advantages of the social setting are often ignored or underutilized by teachers. As many writers have argued, people have strong needs to belong to cohesive groups with mutually concerned members; the feeling that one is attached to, valued by, and contributing to such a group can be a powerful motivating and sustaining force (see McMillan & Chavis, 1986.) We see the sense of community as a central integrating factor that promotes students' attachment to school and thereby their striving to adopt the school's norms and values.

We define the sense of the classroom as a community as including two major elements: (a) members' feeling that they and their classmates are concerned about one another and working toward common goals; and (2) members' perceptions that they make significant and valued contributions to the class. It seems likely that these conditions can best be created if students have the opportunity to interact and participate actively in the classroom. Students who are relatively free to interact are most likely to learn about and become concerned about one another; they can only make contributions to the class if they are given the opportunity. Thus, we would expect that teacher activities and practices that promote student interaction, collaboration and active participation will be important to creating a sense of community among students.

Secondly, it is essential for the teacher to make clear the value and importance of interpersonal kindness and consideration in the classroom. The teacher models this through displays of warmth and supportiveness, and may also emphasize it verbally by engaging with students in "moral discourse" (see Oser, 1986). Classroom discussions in which it is made clear that students' ideas and opinions are welcomed and seen as helpful would contribute to the students' feeling that they are valued community members, and thus to their sense of community. Finally, classroom management techniques that promote student autonomy and self-direction would be expected to promote student participation and motivation (see Deci & Ryan, 1985; deCharms, 1984), while those that exert extrinsic control would be expected to do the opposite (see Lepper, 1983.). Altogether, the model linking classroom practices, student behavior, and

sense of community predicts that the impact of teacher practices on sense of community is indirect, mediated through effects on student behavior which, in turn, has direct effects on students' sense of community.

The present study investigated these hypotheses through data obtained from observations conducted in elementary school classrooms and from student questionnaires. We also administered a questionnaire to teachers, in order to examine attitudes, goals and expectations that might further our understanding of any relationships found linking classroom activities and practices and students' sense of community.

Method

Design and Subjects

Data were collected as part of a larger study of students, teachers, and their schools and classrooms in six urban and suburban school districts—three on the west coast, one in the upper south, one in the southeast, and one in the northeast. Four elementary schools from each of the six districts participated in this study. Each classroom in the 24 schools (n=541) was observed four times during the school year and a series of student questionnaires was given to students in 259 classrooms in the upper three grades (3-5 in four districts; 4-6 in two) at the end of the school year. The present study is limited to observation and student questionnaire data from 232 upper-grade classrooms in which at least 10 students[1] completed the questionnaire. Questionnaires were administered to 5,143 students in those classrooms.

Measures

Classroom activities and practices. Each classroom was observed four times during the year, using a structured observation system derived from those used by Solomon and Kendall (1979), and Solomon, Watson, Delucchi, Schaps, and Battistich (1988). (See also Solomon, Watson, and Deer, 1988). There were separate teams of four observers in each of the six districts, and each observer made one visit to each class. Observers watched class activities during each of 12 four-minute periods, and, after each, made a

series of ratings of the occurrence of various activities, practices and qualities during the period. The observers focused on the teacher and classroom activities for half the four-minute periods (these are called "classroom focus" periods), and on the behavior and activities of small groups of students for the other half ("student focus" periods), alternating between the two in successive periods. Each classroom visit took about 90 minutes in total.

The observers' ratings used three point scales (0 = no occurrence or intensity, 1 = minimal occurrence or intensity; 2 = more than minimal occurrence or intensity). Observers in all districts were trained by the same person[2] and with the aid of a common set of videotapes of a broad range of class sessions, divided into four-minute segments. Criterion scoring of these videotapes was done by project staff members to aid in the training. Another set of similar videotapes was used to help maintain observers' accuracy and consistency during the course of the year. Observers in all districts periodically scored the same videotape segments independently, and their scoring was compared with criterion scoring of the same segments. The number of segments scored by observers in the various districts ranged from 15 to 31. Average overall observer agreement with the criterion scores was 84.6%. We also assessed observer-criterion agreement with indices that adjust for the greater likelihood of agreement on nonoccurrence of infrequent events (see House, House, & Campbell, 1981), and obtained agreement indices of 76.5% for "interobserver agreement" (Clement, 1976), 73.3% for "weighted mean average" (Farkas, 1978), and .62 for Kappa (Cohen, 1960). These indicate that the observers' agreement with the criterion scoring was in the adequate-to-good range. The observers in each district met every two weeks or so during the year to discuss their scoring of these segments and to raise questions about any discrepancies between their scoring and the criterion scoring; this helped them to maintain commonality in their understanding and use of the system throughout the year.

Scores from each observed item were aggregated across the segments and visits for each classroom. Items relating to each of the selected aspects of teacher practices and student behavior were identified from the observation data, and scales were constructed representing each after consideration of inter-item correlations, preliminary factor analyses, and the conceptual meaning of each construct. To confirm the distinctness of these scales, we conducted separate factor analyses of final sets of selected teacher practices items and student behavior items, using principal axis factor analysis with oblique rotation. Results of these factor analyses are shown in Tables 1 and 2. They indicate that the items can be reasonably organized into five teacher practices factors and three student behaviors factors. The factors are generally distinct and appear adequately to represent the identified aspects of teacher and student activity. The teacher practices factors (Table 1) were labeled: (1) *Warmth and supportiveness,* (2) *Emphasis on prosocial values,* (3) *Encouragement of cooperation,* (4) *Elicitation of student thinking and expression of ideas,* and (5) *Use of extrinsic control.* The student behavior factors (Table 2) were labeled: (1) *Positive behavior among students, (2) Student engagement, and* (3) *Student influence.* Inter-factor correlations were small to moderate; they ranged from -.22 (between factors 4 and 5) to .24 (between factors 1 and 4) for the teacher practices factors, and were .10 (between factors 1 and 2), .31 (between factors 1 and 3), and .24 (between factors 2 and 3) for the student behavior factors. It should be noted that some of the student behavior items showed substantial loadings on two factors—*positive behavior among students* and *student influence* (the two with the highest inter-factor correlation). This degree of "cross loading" was sufficient to require that it be incorporated in the structured model described later.

Insert Tables 1 and 2 about here

Reliability of these scales was assessed in two ways: (a) as the internal consistency of the aggregated items for each scale, using coefficient alpha; and (b) as the consistency of the mean of the four observers' aggregated scores (applying coefficient alpha to the four observers' scores for each scale—see Suen & Ary, 1989). In the latter procedure each observer is treated as an "item," and there are thus only four items per scale.[3] The internal consistencies of the items within each scale are also shown in Tables 1 and 2, and range from moderate to good. Consistencies of the scale means across the four observers were (in the order listed above) .40, .37, .81, .50, and .54 for the five teacher practice scales, and .39, .69, and .69 for the three student behavior scales, probably indicating that some types of behavior were more variable across occasions than others.

Sense of community. Students' sense of their classroom as a caring community was assessed with a questionnaire scale derived from those used in our earlier work (Solomon et al, 1992), in which students used 5-point scales to indicate their agreement or disagreement with various statements concerning mutual support among class members and student participation in classroom decision-making and norm-setting.

The sense of classroom as community scale is composed of items in two subscales: (a) the feeling of mutual concern and support in the classroom (14 items, e.g., "Students in my class are willing to go out of their way to help someone," "My class is like a family" "Students in my class help each other learn," "Students in my class just look out for themselves" [reflected]; internal consistency = .82); and (b) the feeling that students had meaningful participation in classroom planning, norm-setting, and decision-making (10 items, e.g., "In my class the teacher and students decide together what the rules will be," "In my class the teacher and students together plan what we will do;" internal consistency = . 80). The internal consistency of the overall 24-item scale was .85. The scale was aggregated to the classroom level for the analyses reported here. The classroom scores ranged from 2.13 to 3.74, with an overall mean of 2.88 and a standard deviation of .32. The teacher questionnaire included a parallel measure—the teacher's

view of the school as a community for students (19 items, internal consistency =.81). This scale correlated with the student measure .38 ($p<.001$).

School poverty index. Because our earlier work had indicated that the relationships between sense of community and various student outcomes were generally independent of the poverty level of the school population, and in some cases appeared to be actually stronger in high-poverty schools (Solomon & Battistich, 1993), we felt it was important to investigate the consistency of the patterns of relationships between classroom activities and practices and the sense of community across poverty levels. The same school-level poverty index used in our earlier work (the percentage of students in each school who were eligible for free or reduced lunches, median = 28%, range = 2-95%) was therefore also used for the analyses in this investigation.

Analysis

All of the analyses reported in this paper are based on class-level data. The general model that guided the analysis assumed that the relationships of teacher practices with students' sense of community (aggregated to the classroom level) are indirect—through intermediate relationships with student engagement, participation and interpersonal behavior, which are expected to be the primary proximate correlates of community.

Path analysis was used to test the proposed model using EQS (Bentler, 1992) with generalized least squares estimation. In order to provide a cross-validation of the model, and, particularly, to determine whether the relationships among variables in the model differed according to the poverty level of the school population, we divided the sample of 232 classrooms at the approximate median of the distribution of school scores on the poverty index, which corresponded with a natural break in the distribution (Low Poverty Group = 28% or less receiving free or reduced lunches, n = 122 classrooms, range=2-28%; High Poverty Group = more than 28%, n = 110 classrooms, range=35-95%), and conducted a path analysis for both subsamples. We then tested for structural invariance (using equality constraints for all free parameter estimates) between the two groups.[4]

Results

Intercorrelations among all variables in the hypothesized path model are shown in Table 3. The effect of the school's poverty level is examined in two ways in this table: (a) through the presentation of separate correlations for the high- and low-poverty groups, and (b) by presenting correlations for the total sample with and without the measure of school poverty level partialled out. It can be seen from examining this table that most of the predictor variables were at least moderately intercorrelated, that each of the student behavior variables was significantly related to two or more of the teacher practice variables, and that the student behavior variables generally showed stronger relationships with sense of community than did the teacher practice variables. It can also be seen that most of these variables were significantly related to poverty level (which itself correlated with sense of community -.34, $p < .001$). However, poverty level made relatively little difference in the magnitude or pattern of the correlations among teacher practices, student behavior, and sense of community, as indicated either by the partial correlations or by comparing the correlations obtained with the low and high poverty samples.

Insert Table 3 about here

These impressions from the correlation analysis were confirmed by the path analysis conducted to test the model shown in Figure 1. A preliminary examination revealed that it was necessary to incorporate the covariation between the error terms for *positive behavior among students* and *student influence* into the model. As indicated by the apparent overlapping of these two scales (see Tables 2 and 3), the error terms for these variables may not represent random error alone but could include some stable variance which was not accounted for by the initial model. This error covariance was therefore specified in a modified model and was shown to be significant.

Insert Figure 1 about here

The modified model had an excellent fit for both poverty groups (Low Poverty Group, $n = 122$, $\chi^2 = 5.13$, $df = 7$, $p = .64$, Comparative Fit Index [CFI; Bentler, 1990] = 1.00; High Poverty Group, $n = 110$, $\chi^2 = 3.20$, $df = 7$, $p = .87$, CFI = 1.00). Although the same general path model was found to fit the data for both groups, this does not directly test whether the pattern of relationships is identical across poverty levels. In order to test the hypothesis of invariant relationships among exogenous and endogenous variables across poverty levels, we conducted a sequence of structural invariance tests on three models, applying successively more restrictive (and so more parsimonious) equality constraints to the parameter estimates across groups.

Model 1 is the least restrictive model, allowing all parameters to vary freely across two groups. As expected, this model provided an excellent fit to the data (χ^2=8.34, df=14, p .87, CFI = 1.000). Model 2 constrained the path coefficients to be equal between the two groups, but allowed the covariances (interpredictor relationships and error covariances) to vary across groups. It also produced a good fit, indicating that it is likely that the path coefficients were the same for both groups (χ^2=37.93, df=32, p=.22, CFI = .999). Model 3 was the most restrictive, with equality constraints for both the path coefficients and all the covariances. This model also showed an acceptable fit (χ^2=54.06, df=43, p=.12, CFI = .997). Thus, even the most parsimonious model (Model 3) showed an acceptable fit to the data, indicating that the hypothesis that the observed relationships were identical across poverty levels was supported in the sample.

Standardized estimates of the Model 3 are presented in Table 4 (correlations among the exogeneous variables) and Figure 1 (path coefficients and squared multiple correlations- R^2-for the full sample). Each of the scales representing teachers' classroom practices showed significant relationships with one or more of the student measures. As

predicted, the relationships between teacher behavior and *sense of community* were indirect, through intermediate associations with the three measures of student classroom behavior, all of which were significantly related to *sense of community*. Generally, the significant relationships were negative with teachers' use of *extrinsic control* and positive with the other teacher variables. The teachers' *encouragement of cooperation* showed the strongest relationships with student behavior (with their *influence* in the classroom and their *positive interpersonal behavior*). Teacher *warmth and supportiveness* showed a substantial positive relationship with student *engagement*. The other significant linkages were positive relationships between teachers' *prosocial emphasis* and both student *influence* and *positive behavior;* a positive relationship between *elicitation of student thinking* and student *engagement*; and negative relationships between *elicitation of student thinking/expression of ideas* and students' *positive behavior*, and between *external control* and student *engagement*. The negative relationship between teachers' *elicitation of student thinking/expression of ideas* and student *positive behavior* was unexpected. (The correlations in Table 3 suggest that this negative relationship may have been influenced primarily by the low poverty schools, but we have no explanation as to why this should have been the case.)

Insert Table 4 about here

Discussion

This investigation showed explicit links between teachers' practices and student behaviors in the classroom, which were in turn related to the students' sense of the classroom as a community. These findings, together with others that have demonstrated clear linkages between students' sense of community and a large number of other student outcomes, suggest that it is important for teachers to create classrooms that encourage students' active participation, collaboration, and interpersonal support, and indicate that

teachers can accomplish this by modeling interpersonal concern, by providing and encouraging interpersonal support and collaboration, student autonomy and self-direction, and by emphasizing and encouraging student thinking and intellectual exploration. The importance of the role of cooperation in the classroom is particularly interesting. The present model suggests that cooperative interaction is a primary mechanism that provides students with opportunities to exert meaningful influence and to display (and experience) positive behavior with their peers. The central importance of cooperation in these findings is consistent with the many studies that have shown cooperative classroom activity to be effective for producing positive interpersonal behavior and affect as well as academic gains. It is also worth noting that the measure of encouragement of cooperation used in this research does not clearly distinguish high quality from low quality cooperation. We have shown in other research (Battistich, Solomon, & Delucchi, 1993) that the quality of the cooperative activity makes a large difference; thus the role of cooperation shown in the present research, large as it is, might be even greater if the quality of that activity had been taken into account.

As stated earlier, our underlying assumption was that students will experience a sense of community when their needs for belonging, autonomy and competence are satisfied within the group setting. We assessed teacher practices and student behaviors that seemed most consistent with the fulfillment of these needs, but did not assess them directly. Although the results are quite consistent with these assumptions, it remains for further research to include explicit indicators of the fulfillment of these needs to test the assumptions more directly.

The fact that the basic findings relating classroom practices to the sense of community held across poverty levels, in conjunction with our earlier findings that the *effects* of having a sense of community were also largely independent of poverty level, leads to some optimism that it is possible to create the conditions that will lead to a

community feeling, and hence to the many benefits of participating in a school environment that has this quality, in virtually any school.

Our earlier research (Solomon & Battistich, 1993) has suggested that participating in schools that are experienced as communities may be particularly important for low-SES students; the present findings suggest that the same set of classroom activities and practices can help to create a community feeling among students at different poverty levels. The finding that the same variables are related to the sense of community for students in both high and low poverty schools underscores the importance of creating open and supportive atmospheres for all students, including those who are commonly assumed not to be able to handle or benefit from them. While this suggestion deviates from the controlling and restrictive approaches traditionally recommended as most appropriate for educating disadvantaged students, it is consistent with more recent calls for educational approaches for disadvantaged students that emphasize the importance of eliciting active student engagement in meaningful activities (e.g., Knapp & Shields, 1991). It is also consistent with research demonstrating the importance of warm and supportive teacher practices for students from low-SES backgrounds (Brophy & Good, 1986; Finn, 1992; Solomon & Kendall, 1979).

Some important limitations of this study should be noted. The patterns of relationships shown are based on data that are cross-sectional and correlational. We have no firm basis for inferring that the causal directions emphasized in our model are the correct, or only possible directions; although the data are certainly consistent with those causal hypotheses. Furthermore, although the identified teacher and student variables showed significant and clear relationships with students' sense of community, we cannot guarantee that these are the only, or even the most important associated variables. The set we have selected seems coherent and sensible, but, as in all scientific investigations, it is possible that other sets of variables would produce equally strong, or even stronger, patterns of relationships. Since the time the data reported here were collected, further

data have been collected from all of these schools, and half have begun implementing an intervention designed to enhance the sense of community in schools and classrooms (the findings reported here were derived from the pre-intervention baseline data collection). Analyses incorporating data from later years of the project, taking into account effects of the intervention, will, we hope, enable us to draw more definitive conclusions about the causal sequences among classroom practices, student behavior, the sense of community, and the various effects of attending schools that are experienced as communities.

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Footnotes

[1]We felt that at least 10 students were required to consider the student scores to be representative of a classroom.

[2]Jane Deer collaborated in finalizing the observation system used in this study, and conducted all observer training in all six districts.

[3]A "generalizability" assessment was not possible because each observer made only one visit to each classroom, and thus observer and occasion are confounded.

[4]We would have preferred to examine a latent variable model in which the path coefficients are estimated without measurement error (i.e., in which the measured variables are modeled as manifest indicators of latent constructs). However, a sample of 232 classrooms (*n*s=122, 110 in the two-group analysis) seemed insufficient to produce stable estimates of the large number of parameters that would have to be estimated in a latent variable model. Bentler (1992) has suggested that the ratio of sample size to the number of estimated parameters should not be less than 5:1, even under normal distributional assumptions.

Table 1

Items in Observation-Based Teacher Practices Scales: Exploratory Factor Analysis and Internal Consistency

Observation Scale	Factor Loadings					Internal Consistency	
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Item-Total Corr.	Coeff. Alpha
Warmth and Supportiveness							.85
Teacher warmth	.87					.81	
Teacher patience	.82					.65	
Teacher enthusiasm	.77			.44		.70	
Teacher gives support/encouragement	.73			.39		.60	
Emphasis on Prosocial Values							.79
Teacher indicates that interpersonal values extend beyond the classroom		.76		.26		.61	
Teacher mentions, discusses, encourages, or emphasizes prosocial values	.37	.74	.36			.74	
Teacher expression of prosocial values	.42	.68	.39			.71	
Teacher uses media, assigns or leads activity focused on prosocial values	.24	.67	.23			.63	

Table 1 (Continued)

Observation Scale	Factor Loadings					Internal Consistency	
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Item-Total Corr.	Coeff. Alpha
Teacher helps students explore moral/prosocial values		.66				.49	
Teacher promotes concern for people outside the classroom		.65		.30		.47	
Teacher expresses own moral/prosocial values		.61				.43	
Teacher advocates own moral/prosocial values		.44				.26	
Encouragement of Cooperation							.55
Classroom focus: use of cooperative groups			.79			.60	
Teacher encourages helping/cooperation	.35	.31	.76			.50	
Student focus: use of cooperative groups			.76		-.22	.53	
Elicitation of Student Thinking and Expression of Ideas							.77
Teacher asks for inferences/hypotheses	.21			.76	-.24	.66	
Teacher elaborates on students' responses	.23	.33		.74		.61	
Teacher emphasis on thinking/reasoning	.30			.74	-.30	.56	
Teacher helps students clarify their own thinking				.72		.58	

Table 1 (Continued)

Observation Scale	Factor Loadings					Internal Consistency	
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Item-Total Corr.	Coeff. Alpha
Teacher encourages students to follow-up on each others' ideas	.26	.39	.25	.62		.55	
Teacher asks for opinions/personal experiences		.45	.32	.51		.45	
Teacher draws connections between students' ideas	.20	.51		.49		.44	
Extrinsic Control							.72
Pervasiveness of teacher's control over students	-.38			-.34	.73	.59	
Teacher stops student behavior	-.34			-.37	.72	.59	
Teacher uses or threatens punishment	-.37			-.30	.68	.54	
Teacher use of rewards, grades, points					.65	.40	
Teacher emphasis on behavioral procedures				-.36	.64	.49	
Teacher use of extrinsic incentives					.63	.36	
Teacher use of discipline/reward chart					.58	.47	
Teacher display of specific behavioral rules					.43	.37	
Percent of variance accounted for	7.2	21.4	6.1	6.7	12.8		

Table 1 (Continued)

Note. This analysis used principal axis factoring with Kaiser normalization and oblique rotation. Factor loadings lower than .20 are not shown.

Table 2

Items in Observation-Based Student Behavior Scales: Exploratory Factor Analysis and Internal Consistency

Observation Scale	Factor Loadings			Internal Consistency	
	Factor 1	Factor 2	Factor 3	Item-Total Corr.	Coeff. Alpha
Positive Behavior Among Students					.78
Student focus[a]: helpfulness	.88		.24	.59	
Student spontaneous helping of other students	.84			.52	
Classroom focus: helpfulness	.67		.35	.50	
Student focus[a]: concern for others	.64		.43	.55	
Student focus[a]: friendliness	.55		.67	.74	
Classroom focus: friendliness	.48		.79	.70	
Classroom focus: concern for others	.39	.25	.50	.42	
Student Engagement					.84
Student focus[a]: student enthusiasm		.84	.35	.75	
Classroom focus: student enthusiasm		.79	.47	.72	
Classroom focus: student active participation in learning		.77	.21	.66	
Student focus[a]: student active participation in learning	.25	.75		.62	
Student focus[a]: on-task behavior		.68		.49	

Table 2 (Continued)

Observation Scale	Factor Loadings			Internal Consistency	
	Factor 1	Factor 2	Factor 3	Item-Total Corr.	Coeff. Alpha
Student Influence					.70
Teacher gives students choice within activity	.30		.73	.52	
Teacher provides for student autonomy	.42	.22	.73	.54	
Students have freedom of mobility	.39		.73	.52	
Teacher gives students choice of activities			.61	.43	
Students get own materials, supplies		.22	.52	.38	
Student-made class decorations			.52	.43	
Classroom display of whole class projects		.32	.47	.40	
Students participate in planning			.34	.23	
Classroom display of group projects			.20	.23	
Percent of variance accounted for	8.2	12.2	28.6		

Note. This analysis used principal axis factoring with Kaiser normalization and oblique rotation. Factor loadings lower than .20 are not shown.

[a] The "student focus" observations were divided into those in which students were engaged in a small group activity, and those in which the simply focused on four or five adjacent students in the class. Because the number of observed groups was very small in some classes, these student variables were derived exclusively from the non-grouped student focus settings.

Table 3

Intercorrelations Among Variables in the Model

	Teacher Practices					Student Behavior		
	Warmth	Prosocial Emphasis	Cooperative Emphasis	Thinking Emphasis	Extrinsic Control	Positive Behavior	Student Engagement	Student Influence
Teacher Practices								
Prosocial Emphasis								
Low Poverty Group	.42***							
High Poverty Group	.27**							
Total Sample	.34***							
Partial Corr[a]	.34***							

Table 3 (Continued)

	Teacher Practices					Student Behavior		
	Warmth	Prosocial Emphasis	Cooperative Emphasis	Thinking Emphasis	Extrinsic Control	Positive Behavior	Student Engagement	Student Influence
Encouragement of Cooperation								
Low Poverty Group	.32***	.29***						
High Poverty Group	.29*	.42***						
Total Sample	.32***	.35***						
Partial Corr[a]	.31***	.33***						
Elicitation of Student Thinking and Expression of Ideas								
Low Poverty Group	.45***	.23*	.15					
High Poverty Group	.64***	.50***	.36***					
Total Sample	.53***	.35***	.27***					
Partial Corr[a]	.53***	.33***	.23***					

Table 3 (Continued)

	Teacher Practices					Student Behavior		
	Warmth	Prosocial Emphasis	Cooperative Emphasis	Thinking Emphasis	Extrinsic Control	Positive Behavior	Student Engagement	Student Influence
Extrinsic Control								
Low Poverty Group	-.15	.06	-.14	-.32***				
High Poverty Group	-.25**	-.01	.00	-.11				
Total Sample	-.20**	.01	-.12	-.29***				
Partial Corr[a]	-.20**	.05	-.07	-.26***				
Student Behavior								
Positive Behavior								
Low Poverty Group	.15	.31***	.57***	-.22*	.20*			
High Poverty Group	.04	.32***	.58***	.11	.03			
Total Sample	.11	.32***	.59***	.05	.07			
Partial Corr[a]	.10	.29***	.57***	-.12	.15*			

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Table 3 (Continued)

	Teacher Practices					Student Behavior		
	Warmth	Prosocial Emphasis	Cooperative Emphasis	Thinking Emphasis	Extrinsic Control	Positive Behavior	Student Engagement	Student Influence
Engagement								
Low Poverty Group	.49***	.15	.20*	.36***	-.22*	-.05		
High Poverty Group	.36***	.18*	.20*	.34***	-.22*	.12		
Total Sample	.42***	.17**	.22***	.37***	-.24***	.03		
Partial Corr[a]	.42***	.15*	.19**	.35***	-.21***	-.02		
Influence								
Low Poverty Group	.36***	.47***	.50***	.16*	-.04	.55***	.06	
High Poverty Group	.12	.28***	.58***	.19*	-.03	.53***	17	
Total Sample	.24***	.36***	.56***	.23***	-.11	.54***	.12	
Partial Corr[a]	.24***	.34***	.52***	.16*	-.01	.48***	.07	

Table 3 (Continued)

	Teacher Practices					Student Behavior		
	Warmth	Prosocial Emphasis	Cooperative Emphasis	Thinking Emphasis	Extrinsic Control	Positive Behavior	Student Engagement	Student Influence
Sense of Community								
Low Poverty Group	.18*	.21*	.27***	.04	-.02	.31***	.34***	.29***
High Poverty Group	.00	.23*	.41***	.12	.01	.39***	.16	.49***
Total Sample	.10	.22***	.36***	.14*	-.08	.37***	.27***	.42***
Partial Corr[a]	.09	.19**	.30***	.07	.00	.29***	.23***	.33***
Poverty Level of School	-.04	-.15*	-.23***	-.21***	.23***	-.30***	-.15*	-.41***

[a] Controlling for school poverty level

*$p < .05$; **$p < .01$; ***$p < .001$

Table 4

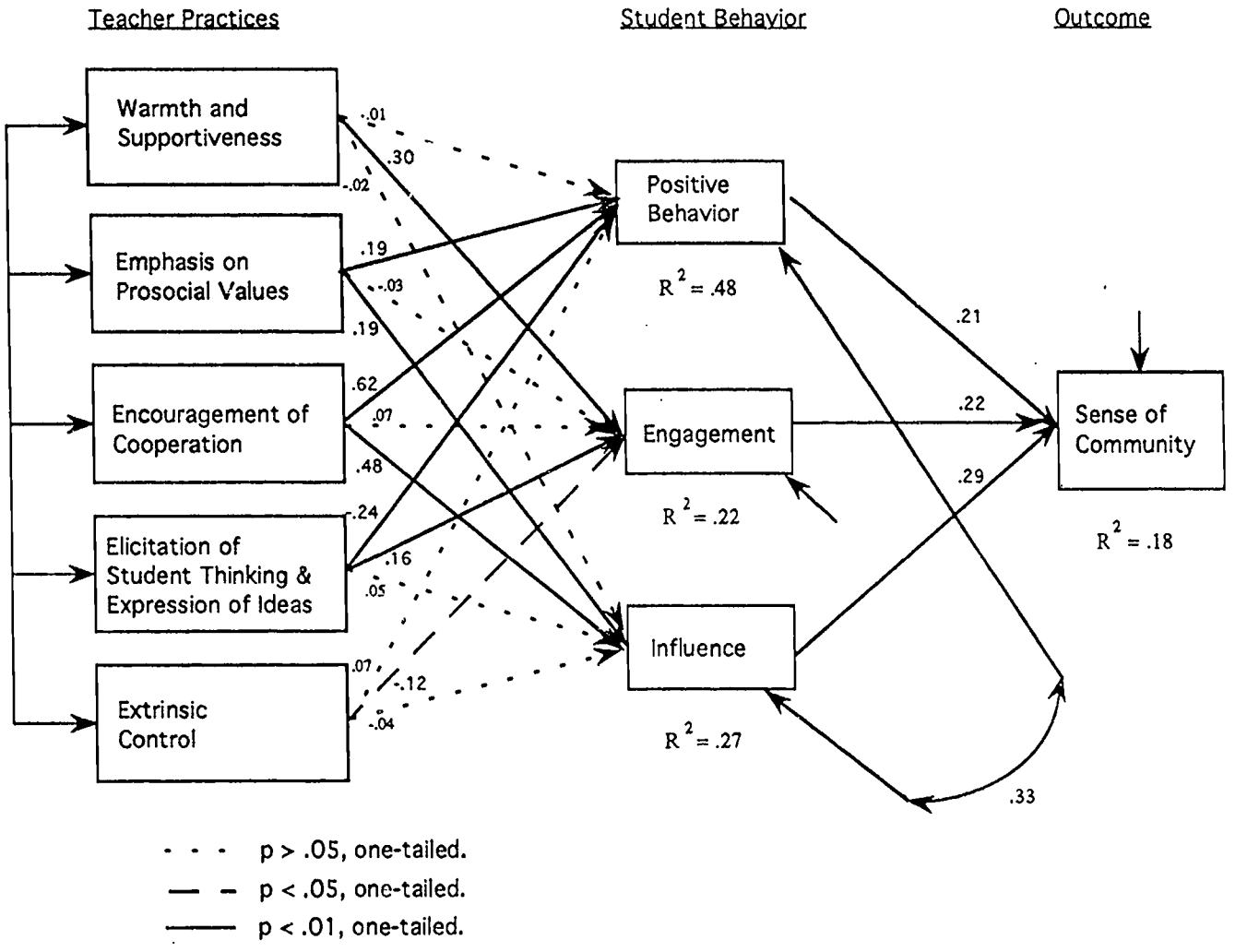
Invariant Parameter Estimates of Correlations

Variables		X1	X2	X3	X4	X5
Warmth and Supportiveness	(X1)	--				
Emphasis on Prosocial Values	(X2)	.35***	--			
Encouragement of Cooperation	(X3)	.33***	.35***	--		
Elicitation of Student Thinking and Expression of Ideas	(X4)	.55***	.40***	.33***	--	
Use of Extrinsic Control	(X5)	-.21***	.01	-.12*	-.30***	--

*p<.05, one-tailed **p<.05, two-tailed. ***p<.01, two-tailed

Figure Caption

Figure 1. Path model with standardized parameters: invariant path coefficients across two groups (high poverty vs. low poverty)



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